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ABSTRACT

The purpose of this study was to examine the multivariate relationship of the Test of English as a Foreign Language (TOEFL) and the First Certificate of English (FCE), administered by the University of Cambridge Local Examinations Syndicate, and to determine whether students' total score on the TOEFL or their overall score on the FCE tends to be a better predictor of their success at the University of Bahrain as measured by overall grade point average (GPA). Subjects were 86 students enrolled at the University of Bahrain. The multivariate prediction of GPA from the scores on the FCE was very accurate. Regression analyses revealed that the FCE Cloze and Sentence Transformation subscores were the only test scores that contributed to the prediction of the student's GPA and his or her GPA in English courses. The TOEFL section scores did not contribute enough to be maintained in the linear prediction model. Results indicate that the FCE is a better test instrument than the TOEFL, especially when English is being taught as a foreign language. Since the TOEFL test did not appear to be an effective predictor of students' academic achievement at the university level, using it as a test instrument in any of the major language courses taught at the university within an English as a Second Language context should be reconsidered. (Contains 7 tables and 22 references.) (Author/SLD)

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TOEFL and FCE Tests as Predictors of Academic Success for Undergraduate Students at the University of Bahrain

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Abstract

The purpose of this study is to examine the multivariate relationships of the Test of English as a Foreign Language (TOEFL) and the First Certificate of English (FCE), and to determine whether students' total score on the TOEFL or their overall score on the FCE tends to be a better predictor of their success at the University as measured by the overall grade point average (GPA). Subjects were 86 students enrolled at the University of Bahrain. The multivariate prediction of the GPA from the scores on the FCE is very accurate. Regression analysis revealed that the FCE Cloze, and Sentence Transformation subscores are the only test scores that contributed to the prediction of both student's GPA, and his or her GPA in English courses. The TOEFL section scores did not contribute enough to be maintained in the linear prediction model. Results indicate that the FCE is a better test instrument than the TOEFL, particularly when English is being taught as a foreign language. Since the TOEFL test did not appear to be an effective predictor of students' academic achievement at the university level, using it as a test instrument in any of the major language courses taught at the university within an EFL context should be reconsidered.

TOEFL and FCE Tests as Predictors of Academic Success for Undergraduate Students at the University of Bahrain

I Introduction

The Test of English as a Foreign Language (TOEFL), which is developed and administered by the Educational Testing Service, is an internationally recognized test given to students who seek admission to graduate programs in 2,400 colleges and universities in the United States and Canada. It is considered to be the most widely used test determining the extent to which international students have developed the English language skills necessary for successful college-level study at these two countries. A number of studies have attempted to measure the predictive validity of the TOEFL scores and have indicated the success of the test as a predictor of students' academic achievement as demonstrated by their overall grade point average (GPA) . The first study of this kind was that of Ayers and Peters (1977) on 50 students who had completed a master's program in the physical sciences or engineering. They found a significant correlation between the TOEFL scores and students' composite GPA. While this result has been confirmed by a number of further studies conducted on the TOEFL scores as determinants of academic achievement of graduate and undergraduate students (Bostic, 1981; Stover, 1981; Perry, 1989; Stoynoff, 1991; Schmidt, 1992; Konnyu-fogel, 1994), the findings of other studies (Sokari, 1980; Hale, et al., 1984; Light, et al., 1987; Taylor, 1989; Hu, 1991; Ayres and Peters, 1977; Case, 1993; QI, 1994; Yan, 1995) suggest that using the TOEFL as a major determinant of an international student's admission to various academic programs in colleges and universities as well as a predictor of the students' subsequent academic success should be reconsidered.

Although the First Certificate of English (FCE), which is administered by the University of Cambridge Local Examinations Syndicate, appears to measure the same common aspects of language proficiency being measured by the TOEFL (Bachman et al. , 1990), to the best of our knowledge, no studies that focus on the ability of the FCE scores to predict international students' academic success as measured by his or her composite GPA have yet been conducted. This fact might be explained by at least three reasons: First, the FCE has not been used as a criterion for admission at British Universities as its level is considered to be below the standard required for studying at a university. Second, the FCE measures the same kind of skills assessed by the TOEFL but on a different level of English language proficiency. Third, the reliability of the FCE test is somewhat questionable because the test has not been standardized on a fixed, standard content, and also because it requires some creative use of English language in its composition part. Consequently, the FCE, as compared to the TOEFL, has received little attention from the specialists in the field of English language testing. This is evident from the relatively small number of studies which have examined aspects of the FCE as an EFL test as compared with the TOEFL (Bachman et al., 1990; Choi, 1990; Kunnan, 1992; Choi and Batchman, 1992 and Ryan and Batchman, 1992). It could possibly be because of the International English Language Testing Service (IELTS) test being considered to be the alternative measure to TOEFL as an admission criterion. Also, institutional bars might have prevented such research rather than a lack of interest. Since IELTS is not used for screening purposes at the University of Bahrain, it has not been possible to include it in such a comparative study.

To date, there has been no study of the multivariate relationship of students' academic achievement as measured by GPA, TOEFL and FCE

scores based on operational (scored and reported) administrations of these instruments. This article uses data generated by actual administrations of such institutional tests to examine these relationships.

II Purpose

The first purpose of the present study was to determine the relationship of success of Bahraini students in a BA degree program at the University of Bahrain as measured by GPA, with their scores obtained on the TOEFL, together with their scores on the FCE examinations.

The second purpose of the study was to determine whether the students' total score on the TOEFL or their overall score on the FCE test tended to be a better predictor of their success at the university as measured by GPA. Since both tests are used for only classroom purposes, it will be interesting to determine which of the two should be used for screening purposes if English proficiency were to become a criterion for admission to university.

III Methods

1 Sample

The subjects for this study consisted of 86 first- and second-year students who were following a degree programme in English Language and Literature at the University of Bahrain. Their degree is based on a credited system of university education. Students need to complete 131 credits in order to graduate, 93 of which are studied within students' major and minor subject specialisation. The subjects were homogeneous in respect of age, nationality, mother tongue and both cultural and educational background.

2 Descriptions of the tests

Test of English as a Foreign Language (TOEFL) : The TOEFL is designed to evaluate the English proficiency of people whose native language is not English. The test uses a multiple-choice format to measure the ability to understand North American English. The institutional form of the TOEFL used in the current study consisted of three sections: Listening Comprehension (Section 1), Structure and Written Expression (Section 2), and Vocabulary and Reading Comprehension (Section 3). Scores from the three are combined to yield a total score that is reported in addition to the section scores. Each section has its own scale, ranging from about 20 to about 68. The total score is derived by summing the three scores and multiplying the result by 10/3.

Section 1 of the TOEFL measures the ability to understand English as it is spoken in North America. Section 2 measures the ability to recognize language that is appropriate for standard written English. Section 3 measures the ability to understand non-technical reading matter.

First Certificate of English (FCE): The purpose of the FCE is to assess the English language skills of people whose native language is not English. This test consists of seven papers: Reading Comprehension involving multiple-choice items plus reading passages, Cloze test, Sentence Transformation test, Word Formation test, Listening Comprehensiontest, and an Interview. Paper 1 includes forty 4-option multiple-choice items in two parts: vocabulary (25 items) and reading comprehension (15 items). Paper 2 includes a cloze test in the form of a passage with blanks, each of which the examinee has to fill in with one word only. Paper 3 is a reading passage followed by five 4-option multiple-choice questions. Paper 4 of the FCE is a

set of ten sentences, which the examinee has to rewrite without changing the original meaning of each sentence. Paper 5, which also includes ten sentences, assesses students' linguistic ability in word building. Paper 6 consists of a serial of recorded texts, and the examinee has to answer the different questions based on his or her understanding of the texts. Finally, Paper 7 assesses the student's ability to give short talks on prepared topics, and to discuss how to solve specific problem situations.

3 Analysis

A general linear multivariate regression was made using the SPSS for the overall score of the FCE and for the TOEFL total score. These analyses were supplemented by a stepwise regression to explore the contribution of certain sub-scores to the multivariate model. The same general linear multivariate regression was computed, using the total TOEFL score and the overall FCE as dependent variables. The general linear multivariate regression was also applied for the students' composite grade point average (GPA) and for their GPA in the English courses (ENGPA). The general linear model differs from a stepwise regression in its considerations of the contributions of all test scores simultaneously. In effect, the final product of a stepwise regression in which all of the independent variables were entered into the model is equivalent to the general linear regression.

Based on the multivariate regression equations predicted grade point averages (GPAs) were computed. For examinees, who achieved each rounded predicted GPAs, the mean observed GPA was computed and these were plotted against the predicted GPAs. These plots were examined to determine if the fits of the predicted GPAs were equally accurate throughout the range of observed GPAs, that is, in relation to the level of the

examinees' achievement. The same procedure was followed for the grade point averages in English courses (ENGPA). Finally, joint distributions were prepared for selected TOEFL total score intervals, and for the FCE overall score intervals. The median scores achieved by the examinees in these interval ranges on each of the other tests were computed.

IV Results

1 Comparability of examinees' scores

Table 1 shows the means and standard deviations of the component variables pertaining to both the TOEFL and the FCE examinations taken by the whole sample.

Table 1

Means and standard deviations achieved on TOEFL and FCE tests

Test	est components	Mean	tandard Deviation
TOEFL	Section 1	48.77	.90
	Section 2	46.10	8.04
	Section 3	45.49	6.03
	Total score	467.86	7.84
FCE	Multiple Choice	19.33	2.97
	Cloze	6.28	2.00
	Passage	3.20	1.29
	Sen. Transformatio	5.76	2.53
	Word Formation	3.02	0.92
	Listening comp.	7.67	1.36
	Interview	7.37	1. 37
	Overall score	52.61	8.95

It is interesting to note that the students' mean scores on sections 1, 2, and 3 of the TOEFL tend to be less than the corresponding mean scores achieved by a large sample of non-English speaking examinees (n = 731297) who took this test from July 1995 through June 1996 in order to get admission into American Universities. These scores were 52.10, 51.81 and 51.38, respectively, with corresponding standard deviations of 7.30, 7.62, and 8.53. The total score mean of these examinees on the TOEFL was 517.00 with a standard deviation of 71.04 (Educational Testing Service, 1997). An obvious reason for this is that the students involved in this study comprise the entire under-graduate population of the English Department at the University of Bahrain. They have not had much exposure to the TOEFL, and therefore they are not expected to achieve a high score until they reach their third- or fourth-year when attaining a certain TOEFL score becomes a graduation requirement. This is unlike the ETS population whose admission into a university is determined by a high score on TOEFL.

2 Bivariate (zero order) correlations

It is clear in Table 2 that the TOEFL section scores are highly inter-correlated (median = 0.57) as compared to the inter-correlations among five FCE scores where the median equals 0.46 (Table 3). It also appears that, compared to the correlation coefficients of the TOEFL scores with the GPA and the ENGPA, all correlation coefficients of FCE scores with the two variables are of high magnitude ($p < 0.01$), particularly those of the cloze (r=.62 and r=.78 respectively) and the sentence transformation (r=.65 and r=.80 respectively).

Table 2

Bivariate correlation coefficients among TOEFL scores, Grade Point Average (GPA) and GPA in English courses (ENGPA)

		TOEFL				GPA	ENGPA
ariable		Section 1	Stection 2	ection 3	Total		
TOEFL	Section 1	—	—	—	—	—	—
	Section 2	0.52	—	—	—	—	—
	Section 3	0.57	0.74	—	—	—	—
	Total	*	*	*	—	—	—
GPA		0.34	0.51	0.42	0.50	—	—
ENGPA		0.57	0.66	0.55	0.70	0.86	—

* Linear combinations

Table 3

Bivariate correlation coefficients among FCE scores, Grade Point Average (GPA) and GPA in English courses (ENGPA)

	FCE								GPA	ENGPA
Variable	M.C.	Cloze	Pas.	S.T.	W.F.	List.	nter.	Total		
FCE										
M.C.	—	—	—	—	—	—	—	—	—	—
Cloze	0.34	—	—	—	—	—	—	—	—	—
Pas.	0.27	0.53	—	—	—	—	—	—	—	—
S.T.	0.49	0.70	0.52	—	—	—	—	—	—	—
W.F.	0.35	0.49	0.14*	0.45	—	—	—	—	—	—
List.	0.08*	0.60	0.46	0.46	0.18*	—	—	—	—	—
Inter.	0.09*	0.62	0.38	0.51	0.27	0.78	—	—	—	—
Total	**	**	*	**	**	**	**	—	—	—
GPA	0.50	0.62	0.32	0.65	0.38	0.30	0.45	0.69	—	—
ENGPA	0.51	0.78	0.48	0.80	0.55	0.38	0.56	0.84	0.86	—

* This value is not statistically significant at 0.01 level

** Linear combinations

3 Multivariate correlations

Tables 4 and 5 show the results of the stepwise regression predicting student's grade point average (GPA), and GPA in English courses, respectively, using the component scores of the TOEFL and the FCE as independent variables. Note that the TOEFL scores and the subscores on the passage, the word-formation, the listening, and the interview results of the FCE did not contribute enough to the prediction of student's GPA to be maintained in the linear model. The same appears to be true with regard to the student's GPA in English courses except the inclusion of TOEFL Section 2 scores in the linear model (0.5 probability criterion was utilized).

Table 4

Stepwise regression of TOEFL and FCE scores Onto the overall GPA (forward selection)

Dependent variable	Entry order		ndependent variables	Partial *r*-square
Overall GPA	—	TOEFL	Section 1	—
	—		Section 2	—
	—		Section 3	—
	3	FCE	M. C.	0.04
	2		Cloze	0.06
	—		Pas.	—
	1		S. T.	0.42
	—		W. F.	—
	—		List.	—
	—		Inter.	—
Total r – square	—			0.52

Table 5

Stepwise regression of TOEFL and FCE scores on to the overall GPA in English courses (forward selection)

Dependent variable	Entry order		Independent ariables	Partial *r*-square
Overall ENGPA	—	TOEFL	Section 1	—
	3		Section 2	0.03
	—		Section 3	—
	4	FCE	M. C.	0.03
	2		Cloze	0.10
	—		Pas.	—
	1		S. T.	0.63
	—		W. F.	—
	—		List.	—
Total *r* - square				0.79

4 Joint Distributions

Table 6 shows the median scores attained on the TOEFL and the FCE, within score intervals of both tests. The intervals were chosen to represent points where users typically set passing scores. Table 7 shows the joint TOEFL and FCE distributions.

It is difficult to interpret these data since there is no exact agreement among the tests of the construct under measure. However, some interesting patterns have emerged. For example, there were few differences in the FCE skills of examinees beTOEFL total scores of 463 and 600. This interval, however, accounted for more than a half (52.3%) of the examinees. It seems that an FCE score between 52.5 and 59.5, attained by 33.8% of the examinees, is earned by people with varied TOEFL skills. Furthermore, 81.3% of examinees who scored less than 45 in the FCE (Low-achieving group) got low scores also in the TOEFL. It also appears that a score

between 45 and 60 in the FCE exam, achieved by 61.7% of the examinees is earned by a close percentage (53.8%) of the average-achieving group in the TOEFL. Similarly, 76.5% of the high achievers in the FCE test have remained as people with high language skills in the TOEFL test.

Table 6
Median and TOEFL total, and FCE total scores attained by examinees who scored within selected scoring intervals of both tests

Test	Total score interval	Percent in interval	Closest scores to median TOEFL total	Closest scores to median FCE total
TOEFL	200-460	46. 5	—	48.00
	463-500	18.6	—	56.00
	503-550	30.2	—	59.00
	553-600	3.5	—	59.00
	603 and higher	1.2	—	69.00
FCE	28.5-44.5	17.4	403	—
	45.0-52.0	27.9	447	—
	52.5-59.5	33.8	477	—
	60.0-67.0	18.6	530	—
	67.5 and higher	2.3	603	—

Table 7

Joint frequencies of FCE and TOEFL scores in selected ranges

		TOEFL total		
FCE total		333-427	430-503	506-603
Less than 45	N	12	3	0
	%	81.3	18.7	0.0
45-60	N	13	29	11
	%	25.0	53.8	21.2
Greater than 60	N	0	4	14
	%	0.00	23.5	76.5

V Discussion

Results of this study show that the students' composite GPA and the GPA in English courses are highly correlated with their component scores on the TOEFL, and on the FCE, particularly on the sentence transformation and the cloze sections. In terms of predicting a student's academic success at the university as measured by the overall grade point average (GPA), TOEFL scores did not add as much to the model as did the scores on the Cloze and Sentence Transformation sections of the FCE exam. These component scores of the FCE test, along with the Section 2 TOEFL scores, are also good predictors of the students' achievement in English courses taught at the University. It appears that the more proficient students are in understanding and producing correct grammatically formed sentences, the higher their performance in the test.

The fact that the students' scores on sections 1 and 3 of the TOEFL test do not appear to be effective predictors of their academic success at the University as measured by the overall GPA seems to corroborate the previous findings related to the predictive ability of the TOEFL test (Sokari, 1980; Hale, et al., 1984; Light, et al., 1987; Taylor, 1989; Hu, 1991; Ayres and Peters 1977; Case, 1992; QI, 1994; Yan, 1995). However, one discrepancy that can be seen in the present study is that the TOEFL will not be a good predictor for the study sample because it is not an admission requirement at the University of Bahrain. It is true that the TOEFL is not taught at the University, but the student's success in the BA programme depends on his or her success in the TOEFL.

The findings of this study suggest that students' proficiency in English language is determined by their performance on the FCE exam rather than by their performance on the TOEFL test. A possible reason for this outcome

is that the overwhelming majority of Bahrainis are taught within an EFL context. On entering the University of Bahrain, those who opt for English as a major are to some extent given some preparation for the TOEFL test.

Since the scores of the FCE test were found to yield higher correlational magnitude with the students' academic performance at the University, the TOEFL test needn't be incorporated in all the University major language courses as a required component. Students who have interest in either taking a TOEFL or in pursuing their postgraduate study abroad can be offered an elective course in TOEFL preparation, preferably at the fourth-year level.

As previously noted, the TOEFL may be an effective test instrument in an ESL learning context where English is used as a medium of instruction, and where students have both the linguistic and cultural background to pursue their studies through English. This is not seen to be viable where English is taught as a foreign language, as is the case in most state schools throughout the Arab world. They will be better off with first raising their general standard in English through normal language courses such as the FCE or any other internationally recognised EFL course.

Therefore, TOEFL tends to be a better predictor of student's attainment in second language learning circumstances where they will normally be better prepared, culturally speaking, to integrate into the American environment. In contrast, the FCE test is a more appropriate instrument for learners who seek to learn the language merely to develop their manipulative skills in acquiring English. This appears to be especially true of first- and second-year students who first need to reach the FCE standard before being adequately prepared to pass the TOEFL exam.

One major pedagogical outcome of this study is that although FCE is not recognised as a University entry requirement at either British or particularly Arab Universities, its value as a test instrument need not be underestimated.

Since the sentence transformation and the cloze sections of the FCE have signified the importance of developing adequate knowledge of the grammar, teachers of English as a foreign language need to develop in their students the language skills that will make them proficient in the English grammar. Their approach to teaching the language needs to be reviewed.

The conclusion that can be drawn from this study is that the TOEFL is a more appropriate international test for learners of English as a second language than the FCE. The latter has proved to be suitable for students whose learning of the language is confined to its EFL context and for those who are not learning the language as a medium of instruction. Using TOEFL as an essential instrument in any of the University major language course needs to be reconsidered. If the TOEFL is to be used as a language test, it needs to be redesigned to suit the language benefits of non-native speakers of English. ýThese who may not be taking the test for admission to an American university or living in the United States, a purpose for which has not yet been considered by the Educational Testing Service. Traynor, who was once in charge of preparing candidates to take the TOEFL in Bahrain, suggested that the ' TOEFL results need to be approached with more caution than they are at present' (Traynor, 1985: 47). However, since this study focused on first- and second-year students, it is interesting to see if different results would have been obtained, had the study been applied to third- and fourth-year students who are normally expected to perform better than those selected for the present study because of their longer years of language instruction. A further investigation into this issue is needed to confirm this notion.

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